DOCUMENT RESUME

ED 319 048 CS 212 333

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TITLE The Knowledge of Composition.
PUB DATE Jun 90
NOTE 18p.; Version of a paper presented at the Annual Meeting of the Conference on College Composition and Communication (41st, Chicago, IL, March 22-24, 1990).
PUB TYPE Speeches/Conference Papers (150) -- Viewpoints (120)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Audience Awareness; Critical Thinking; *Freshman Composition; Higher Education; *Knowledge Level; *Metacognition; Problem Solving; *Rhetorical Invention; Rhetorical Theory; Schemata (Cognition); Writing Difficulties; Writing Processes
IDENTIFIERS Composition Theory; *Knowledge Acquisition

ABSTRACT

The acquisition of knowledge is concomitant to the writing process and, as such, is a key factor in composition pedagogy. Writing is not just a skill with which the student presents or analyzes knowledge, rather, writing is essential to the very existence of certain kinds of knowledge. Much of writing instruction, however, consists mainly of genre knowledge (discourse formats and principles of competent writing) and assumes that student writers have acquired the prerequisite topic knowledge. Difficulties in writing are then attributed to the lack of strategies necessary to translate conceptual ideas into a verbal form, the lack of knowledge about appropriate discourse forms, or the lack of specific types of audience knowledge. More emphasis, however, should be placed on the student's topic knowledge and should focus on whether the writing problem derives chiefly from a lack of information or whether it exists at the "metaknowledge" level. That is, students often are not aware of the kinds and amount of information they obligate themselves to include when they engage in a writing task. They have poorly developed or unsophisticated knowledge structures that govern what may well be extensive, sophisticated bodies of knowledge. Common weaknesses in freshman writing include no context, no guidance, no direction, and over-generalization. Students assume that their readers will fill in any information gaps. (Four samples of student writing are included for discussion.) (KEH)

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June, 1990

The Knowledge of Composition

Knowledge Acquisition: A Hidden Element in the Writing Process

If you were to pick up a college catalogue and turn to the section on General Education, you would likely find composition listed under a category called "Basic Subjects," and you would read a course description that sounds something like the following: "gives instruction and practice in writing expository prose"; "introduces the rhetorical strategies used in writing college papers"; and "emphasizes understanding the process of writing and composing techniques."[1] Then, if you were to browse through selections at the campus bookstore or writing center, you would find that textbooks written for the composition course have such titles as Patterns in Action, The Writing Process Step by Step, Problem Solving Strategies for Writing, The 500-Word Theme, and English Skills. In view of these few observations alone, it is no wonder that composition has been seen as a skill, rather than a discipline, and that the composition course is contentless--unless, of course, "processes," "patterns," and "steps" comprise its contents. Yet, as Mike Rose has pointed out, the view of writing as a skill or a tool is problematic, because it keeps writing instruction at the periphery of the curriculum.

From the language we use, a "language of exclusion" according to Rose, we are our own worst enemy, if we agree that composition

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should be more than a skills acquisition course. What can we do? Certainly, different language is needed if we are to articulate a new definition of composition. It seems difficult, though, to escape a skills-based or pattern-oriented conceptualization, unless we recognize a hidden element of the writing process as we currently understand it. It is an element that, when brought to the fore, is bound to effect some change in the way composition is perceived. What we too often fail to consider is the role of knowledge.

To understand this role, we need to review the "process" model of writing. First described by Linda Flower and John Hayes, the representation of "writing as process" has given us critical insights into the nature of writing that are overhauling the way most of us teach writing. Through their thinking-aloud protocols, Flower and Hayes have demonstrated writing as a recursive process, divisible more or less into stages, and thus have isolated points where we might intervene in order to guide students more effectively in their writing. Yet something does not quite "fit." The Flower and Hayes protocols show experienced writers at work, writing on topics about which they are already knowledgeable.[2] College freshmen, however, are generally inexperienced writers writing on topics about which they are not already knowledgeable. That is, their writing process takes place alongside an "acquisition of knowledge" process--a parallel that occurs not only in freshman composition but in other college courses and in "real life" writing tasks as well. It is this concomitant process of acquiring knowledge that I want to explore in this essay and ultimately argue for as a key factor in how we (should) teach writing.

Theoretical Underpinnings from Cognitive Psychology

Current theories and findings in the cognitive sciences, particularly cognitive psychology, provide a sound rationale for connecting the two processes. Of special note is the work of Robert Glaser, whose studies of the development of problem-solving and critical thinking skills have revealed a distinct need for context. In "Education and Thinking: The Role of Knowledge," Glaser contends that a process-centered pedagogy which ignores the "role of knowledge" is bound to be less effective than one which embraces it. The impetus of his investigations is a disparity he sees between teaching and learning: "[A]t the present time, the evidence available indicates an apparently improved capability of our schools to teach knowledge of the 'basics' without encouraging thinking and mindfulness" (93). To correct this disparity, he insists that skills must not be taught as "subsequent add-ons to what we have learned"; rather, they should be "developed in the process of acquiring knowledge ..." (93).

To explain the distinction between integrating the acquisition of skills and knowledge versus teaching skills as "add-ons," Glaser looks at a variety of published programs designed to build problem solving and critical thinking skills. Most of the programs, he explains, teach general rules for reasoning and problem solving steps that the student is expected to acquire as habits of thinking. With few exceptions, they rely on knowledge that the student already has in place. They focus on a problem, that is, about which the student would be sufficiently knowledgeable to solve--a problem about work, school, or family, for instance. In the eyes of the publishers, requiring the student to acquire new knowledge as she

worked through the program would detract from the main objective (i.e., to develop critical thinking and problem solving skills). Anyway, they assumed, thinking and problem solving are transferable skills, so the context is relatively unimportant.

In this same study, Glaser also looks at programs that build in the need for the student to acquire additional knowledge about the topic--that is, programs that do not rely exclusively on in-place knowledge. What he finds is that those programs which demand new topic knowledge improve the student's critical thinking and problem solving skills better than programs which rely on the student's existing knowledge. The success of the former programs--and the relative ineffectiveness of the latter--illustrates what happens when skills are taught in isolation, or as "add-ons." It is an approach to teaching and learning, Glaser contends, that is based on outdated theories of human cognition.

Models of Human Cognition

What are these theories to which he refers? In the early 1960s, cognition and learning were conceived primarily as processes. Developmental psychologists were interested in developing models of how people think and how cognitive competencies develop, much as Flower and Hayes are interested in mapping how people write. They thus looked at "knowledge-lean problems" that tapped the basic "information-processing capabilities humans employ when they behave more or less intelligently in situations where they lack any specialized knowledge" (Glaser 96). The result, as Frank Keil explains, was a series of "snapshots" picturing various stages in the development of human cognition, but no explanation of how a

person "progresses from snapshot to snapshot" (Keil 81). In subsequent years, therefore, new studies focused on understanding and representing this progression. And what these studies kept pointing to is the vital role that "knowledge structures" play in cognitive development.

Talking about cognition has its liabilities. Given our need to use metaphoric and analogic terms, we can only, at best, approximate mental representations. The concept of "knowledge structures" is a case in point. Glaser is somewhat helpful, defining these structures as "networks" or "schemata" into which knowledge is organized: "Cognitive psychologists in accounting for various phenomena in memory, comprehension, problem solving, and understanding have found it useful to appeal to the notion of schemata. Schema theory attempts to describe how acquired knowledge is organized and represented ..." (99-100). The importance of knowledge structures, he continues, is their function as both storehouses of information and interpretive "triggers." That is, the structures not only house knowledge; they also provide a foundation for interpreting and categorizing new information. We can see this in our tendency to "understand and think about the new in terms of what [we] already know" (100).

Returning to Keil's studies, we might now ask how knowledge structures affect a person's cognitive development. Part of the answer is straightforward: as knowledge begets knowledge, the structures expand and diversify; the networks grow in number and complexity. However, the way knowledge structures catalyze the transitions that move us from "snapshot to snapshot" is more

complicated. Keil explains that, at certain points in a person's cognitive development, "dramatic and relatively rapid changes in knowledge occur because knowledge structures become differentiated or articulated to such a degree that they suddenly make new relations apparent" (82). These "higher-order" relations come into play, for example, when distinguishing the novice from the expert chess player (Chase and Simon, 1973)[3], or when accounting for a person's ability to comprehend metaphors (Asche and Nerlove, 1960). Keil also says that change can occur as a result of "the discovery that two aspects of knowledge have developed to the point where they are incompatible," posing a dilemma that "becomes the impetus for a new developmental change" (84-85). As a child acquires syntax, for example, he may develop rules for negation and "Wh" questions that are adequate separately but conflict when combined, thus requiring the formation of a new rule.

These two models--the "higher-order relations" and "conflict-resolution" models--represent but two instances of cognitive shifts, and Keil notes a number of other situations in which such transitions likewise occur. In all the cases he cites, the common denominator among them is the role of knowledge structures in effecting change. While process remains a critical part of the cognitive fabric and, indeed, seems inextricable from a discussion of knowledge structures (are not the changes we have been discussing processes?), Keil argues for a provisional separation of structure and process in order to examine the role each plays in cognitive development. As cognitivists had been leaning too heavily on process-based explanations, Keil, Glaser, and colleagues wanted to balance the scales by recognizing the function of knowledge

structures. Keil thus concludes that "Humans are capable of engaging in complex chains of processing, but when they do, the processing is embedded in, and done in reference to, a specific knowledge structure. The process, then, is guided by and is a derivative of the structure of the knowledge, rather than being an independent set of single 'boxes' with patterns of information flow" (96).

Applying These Theories in the Composition Classroom

In light of the relationship between knowledge structures and cognitive processes, it is clear why Glaser advocates approaches to teaching that encompass both. Those cognitive processes that characterize an educated person--critical thinking and problem solving skills, primarily--are best developed in the context of specific knowledge domains. From this general premise, it is but a short leap to the composition classroom.

Most, if not all, compositionists would readily agree that critical thinking and problem solving are an essential part of writing (indeed, Linda Flower's popular composition textbook is entitled Problem Solving Strategies for Writing). Few, however, understand the connection between these skills and knowledge domains. Whether they are able to articulate it or not, proponents of "writing across the curriculum" grasp the significance of the connection. Teachers of general composition, however, may not. The discussion thus far has been an attempt to argue for an elemental connection between the two. The remainder of the essay will explore the consequences such a connection might have on composition pedagogy.

To begin this exploration, we first need to clarify what "knowledge" is, vis-a-vis composition. In her essay, "Knowledge and Process in the Acquisition of Writing Skills," Nancy Stein explains that the composing process depends on several different kinds of knowledge: topic knowledge, knowledge of discourse formats, knowledge of the principles of competent writing, and knowledge about audience (226-227). Putting aside for a moment topic knowledge, the conceptual and factual kind of knowledge that the cognitivists are interested in, we should be quite familiar with the other types of knowledge she lists: they are largely what we teach in our composition classes, and comprise what we might call the "genre knowledge" of composition. But if we have been paying attention to what the cognitivists have to say, we should start to feel uneasy about them. Stein agrees. It is a mistake, she claims, for compositionists to "conceive of composition instruction as being the primary context for teaching students how to use such different types of discourse forms as a story, a description, a concept definition, an essay, and so on" (240). In fact, at least one study (Stein and Colomb, 1985) points to this misconception as the reason for some of the failures experienced in teaching composition. The "knowledge of composition," then, consists only in part of genre knowledge. To complete the definition, we must include topic knowledge as well.

It seems almost silly to say that writers must have sufficient knowledge about a topic before they can write on it. Who would disagree? It is, as Stein says, "probably the most essential knowledge for the production of discourse" (247). But it is an area

that we tend to overlook in the teaching of writing. Maybe because topic knowledge is so basic to writing, we take it for granted that students will acquire the knowledge they need for their writing assignments. Maybe we think that the reading we assign, the class discussions we hold, and the research we suggest will produce a "knowledgeable" writer. Maybe we think that our charge is not to teach topic knowledge but only the genre knowledge of composition. And yet, some of our most frequent complaints about student writing--that is hackneyed, cliched, superficial, trivial--seem to point directly to topic knowledge.

Unfortunately, the assumptions we make about students' topic knowledge can create blind spots in our assessment of their work. As Stein explains, "[Because] the tendency of most writing teachers and researchers is to assume that the writer has acquired all of the prerequisite discipline or topic knowledge, difficulties in writing are then attributed to the lack of strategies necessary to translate conceptual ideas into a verbal form, the lack of knowledge about appropriate discourse forms, or the lack of specific types of audience knowledge" (247).

Metaknowledge

Perhaps we are looking in the wrong place for explanations of our students' writing problems. If, as Stein suggests, more problems than we think lie in the area of topic knowledge, it is time we begin paying more attention to its function in the writing process. A key question we need to ask as we assess a student's topic knowledge is whether the problem derives chiefly from a lack of information or whether it exists at the "metaknowledge" level.

That is, students often are not aware of the kinds and amount of information they obligate themselves to include when they engage in a writing task. In short, they lack knowledge about knowledge. Passages from the essays of two students who recently visited the Writing Center at my university provide a good illustration of problems related to metaknowledge. One student, Jill, had been asked to write a definition essay on "trust." After a brief introductory paragraph in which she defined the term, she began the body of her essay with the following anecdote:

> One year my parents decided to take a vacation in North Carolina. My best friend Kyle asked if she could drive my new car, and I replied, with some hesitancy, that it would be okay. As it turned out, Kyle's friends broke into my apartment, got my keys, and took my car without telling me. Boy, was I angry!

The other student, Allan, was writing an argument about "inequality in the work place." In one of his paragraphs he asserted:

> One common and frequent occurrence of inequality in the work place is how bosses treat their secretaries. The secretaries have to answer the phones, do all the typing, set up meetings, and even make the coffee, while the boss just sits back in his plush office, calls his friends, and goes to lunch with clients.

Jill's passage exhibits a common weakness in freshman writing. She gives no context, no guidance, no direction. We must infer for ourselves the logic linking her parents' trip, Kyle's request and Jill's response, and the action of Kyle's friends. Most importantly, we must figure out how the incident she describes relates to "trust." Her passage bears a striking resemblance to what Jean Piaget calls "egocentric speech," whereby a child "is shut up in his own point of view" when talking to others (Piaget 99). Allan's problem, unlike Jill's, is one of over-generalizing,

stereotyping the behavior of male bosses in relation to their female secretaries. As with most stereotypes, there is a kernel of truth in the one that Allan uses, but his argument about inequality in the work place loses its credibility when he tries to extend the stereotype to all boss-secretary situations.

Each of these students "knows better." During our conferences, Jill was quick to explain the details of her incident with Kyle, and Allan admitted at the outset that he was generalizing about situations in the work place. Neither, however, realized that they needed to say more in their essays. Both figured they had written enough to get their points across, assuming that their readers would fill in any information gaps.

While we might be inclined to blame the omission of essential details, as Jill's and Allan's excerpts illustrate, on problems concerning audience awareness, I would argue that it can be explained more productively in terms of the students' metaknowledge. That is, they have poorly developed or unsophisticated knowledge structures that govern what may well be extensive, sophisticated bodies of knowledge. In the case of Jill and Allan, their genre knowledge was intact--both knew that they had to give examples about "trust" or "inequality in the work place"--and their topic knowledge was adequate--both knew a great deal more than they reveal in their essays. The problem is that they did not know how much of their topic knowledge to draw upon. In cases like these, the typical written comments from teachers--"Jill, a topic sentence and more explanation are needed"; or "Allan, you're making a generalization that isn't true in all cases"; or, worse, the one-word comments

"unclear" or "vague"--would have little instructional value. Such comments do not address the cause of the problem but only the effect.

The metaknowledge problem becomes more complicated when students are asked to write on topics about which they have little or no previous knowledge--the rule rather than the exception in college writing assignments. Reading, discussing, reflecting, and writing certainly will enhance a student's topic knowledge, but if the student's metaknowledge "monitor" is not sufficiently developed, the student may not realize how to marshal his knowledge to explain his topic adequately.

Fortunately, the student can rely on other resources to compensate for metaknowledge weaknesses. Writing assignments, for example, generally provide such genre-related information as purpose, length, scope, and audience. Often instructors will recommend authors, books, or journals as guidance. Some instuctors even share previous student papers to provide a model of what they expect. Still, all the resources in the world may not be enough, as the following example illustrates.

Two students in my composition class last semester were asked to write a short paper for their sociology course proposing a solution to the problem of halfway houses. They had been studying the plight of the homeless in their sociology class and had learned that government-funded halfway houses were not doing enough to help the homeless. Both students are competent writers and both proposed the same solution: increase the funding to halfway houses. However, one student got an "A" grade on her paper, while the other student got a "C." The difference is that the "A" paper reflects a very

astute, knowledgeable writer who presents convincing facts and data; in the "C" paper the writer glosses over her solution because she lacks necessary information. Passages from the two essays show this difference:

"A" Paper

> Clearly the government needs to reallocate some of its funds in order to supplement the ridiculously low budgets which halfway houses presently receive. Experts from the President's Human Resource Commission say that a well-staffed halfway house needs approximately $50,000 a year to operate and provide essential services (counseling, intervention, job placement, etc.). They only get an average of $25,000, however. If you look at the federal budget pie, it shows that nearly $8 billion is allocated each year for cultural events. Whay can't $1 million of this be turned over to halfway houses? With just this minor shift of money, forty halfway houses could then function capably, serving over 4,000 homeless people. Money could also be taken from [....]

"C" Paper

> It's time that we considered increasing the operating budgets of halfway houses if we want to do something truly effective to help the homeless. Sure, the average taxpayer will not want to increase the amount of money he gives each year to Uncle Sam, but all he needs to do is go down to Skid Row and see a few of the wretched people there and he will probably think twice. Most people just need to be informed about the issue. I, for one, would definitely be willing to increase my taxes now that I fully understand the plight of the homeless. [...]

The "C" student later told me that she hadn't realized it was necessary to "get so specific." It never occurred to her to quantify "tax increase" or even to investigate actual operating expenses of halfway houses. From her class lectures and reading, the message had been clear that halfway houses need additional financial support, so she assumed the solution was simply a matter of raising the public's consciousness. The rest of her paper

focused largely on how "television could be used to help persuade the public" through commercials, movies, and telethons. Yet she failed to consider who would organize such a massive media campaign or how it would be financed. All of these failings, I would suggest, owe to problems at the metaknowledge level. She did not know what she needed to know in order to propose a workable remedy for the financial straits of halfway houses.

Summary

Whether a piece of student writing suffers from weaknesses in the student's topic knowledge or metaknowledge (or both), this distinction between knowledge categories is only useful if it helps us to understand better the writing process of our students and, consequently, to become better teachers of writing. I think it does.

For one, the concept of metaknowledge implies a subtle but important shift in pedagogical focus: "genre knowledge," the term which we are replacing, refers to a body of knowledge--rules, strategies, concepts--about writing. "Metaknowledge" refers to knowledge structures in the writer. This means that the composition course can no longer be conceived as "teaching rhetorical strategies and composing techniques," those descriptions we usually find in college catalogues. It can no longer present a syllabus that teaches audience awareness one week, sentence manipulation the next, and essay models the week after that. While the composition course will certainly continue to include such instruction, it will depend on the needs of the student as writer and not on some presribed, predetermined body of information.

Next, the importance of topic knowledge discussed above calls long overdue attention to this critical part of composing. It suggests that we spend more class time on invention, not only to draw out what students know about a topic, but also to point out knowledge gaps. It means that we re-think our use of reading assignments and class discussions as ways of making students more knowledgeable about their topic.

Finally, and most significantly, the message of Glaser's study--that problem solving and critical thinking skills are best developed in conjunction with topic knowledge acquisition--should make us wary of writing assignments that do not ask students to gain new topic knowledge. Those of us who typically design our writing assignments based on what our students already know--family experiences, school, rock music, television--may actually be doing students a disservice if we do not demand new knowledge acquisition as part of the assignment.

In closing, let us return to our introductory comments about the peripheral status of composition, a status for which we compositionists are largely responsible. I would suggest that "knowledge," in its various forms and dimensions discussed herein, offers us a way to bring composition to the center of the curriculum. As Mike Rose argues, "writing is not just a skill with which one can present or analyze knowledge. It is essential to the very existence of certain kinds of knowledge" (348). This interleaving of writing and knowledge--in some cases, the equation of writing with knowledge--is how we should conceptualize composition. Although, for the purposes of this essay, I have

dissected knowledge into categories and distinguished it from the writing process, it is perforce a provisional separation. Just as Frank Keil separated knowledge structures from cognitive processes to make his point about the function of each, so have I separated knowledge from writing to shed light on what has been a hidden element in the writing process. Ultimately, as Rose contends, writing and knowledge are inseparable. But I would add that just as writing shapes knowledge, so too does knowledge shape writing. This reciprocity should be at the heart of how we talk about and teach composition.

NOTES

1 These desriptions come from the 1987-88 catalogues of California State University, Los Angeles; California State University, Northridge; and the University of Southern California.

2 In 1984, when Flower and Hayes first published their protocol studies, their first "subject" was an English teacher who was asked to write something for readers of Seventeen magazine. Even in Flower's recent protocol analyses--and here I am referring to "The Construction of Purpose in Writing and Reading" (College English 50, September 1988)--the protocol subject is an English graduate student who teaches freshman composition and who is asked to write something about "revision." Neither of these protocol subjects is representative of the average freshman writer.

3 In an interesting follow-up study, Chi (1978) compared the recall ability of "high-knowledge 10-year-old children who played tournament chess and low-knowledge adults who knew little chess" (Glaser 97). Although adults presumably have more sophisticated mental capabilities, the children in this study displayed far superior ability than the adults--attributable to knowledge structures.

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